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3-22-01

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
PATENT APPLICATION

#3

In the Application of:

Guven et al.

Atty. Docket: TI-32148

Serial No.: 09/750,264

Art Unit: TBD

Filed: December 29, 2000

Examiner: TBD

For: MODEM RELAY PROTOCOL  
REDUNDANCY FOR RELIABLE  
LOW SPEED MODEM  
COMMUNICATIONS OVER IP  
NETWORKS WITH SUBSTANTIAL  
PACKET LOSS

Date: April 16, 2001

Assistant Commissioner for  
Patents  
Washington, D.C. 20231

**CERTIFICATE OF MAILING 37 CFR §1.8(a)**

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D. C. 20231 on the date indicated below.

4/16/01

Warren L. Franz, Reg. No. 28,716

**LETTER TO THE OFFICIAL DRAFTSPERSON**

Sir:

Please find enclosed eight (8) sheets of substitute/formal drawings for the subject application as required by the Notice to File Corrected Application Papers mailed February 15, 2001, a copy of which is also enclosed.

Respectfully submitted,

Warren L. Franz 4/16/01  
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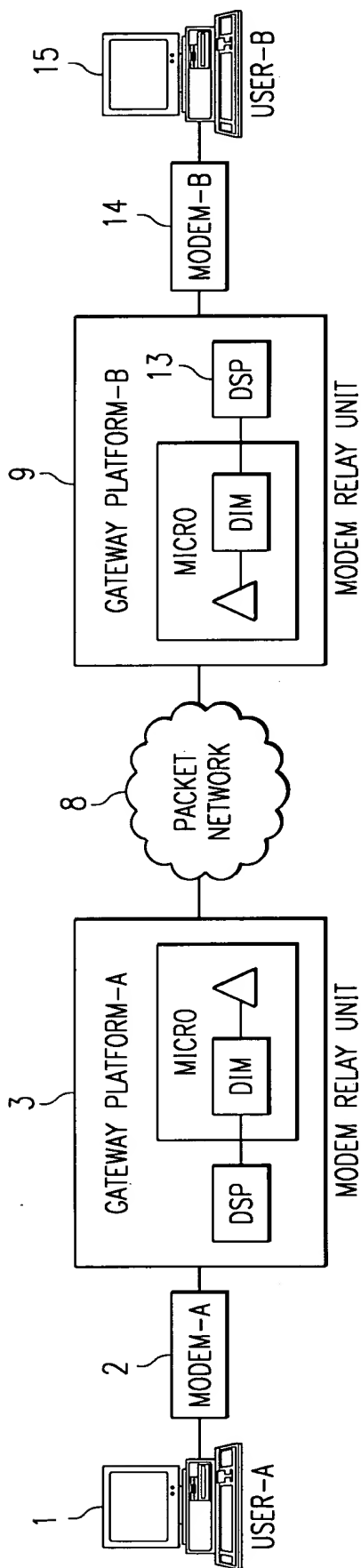


FIG. 1

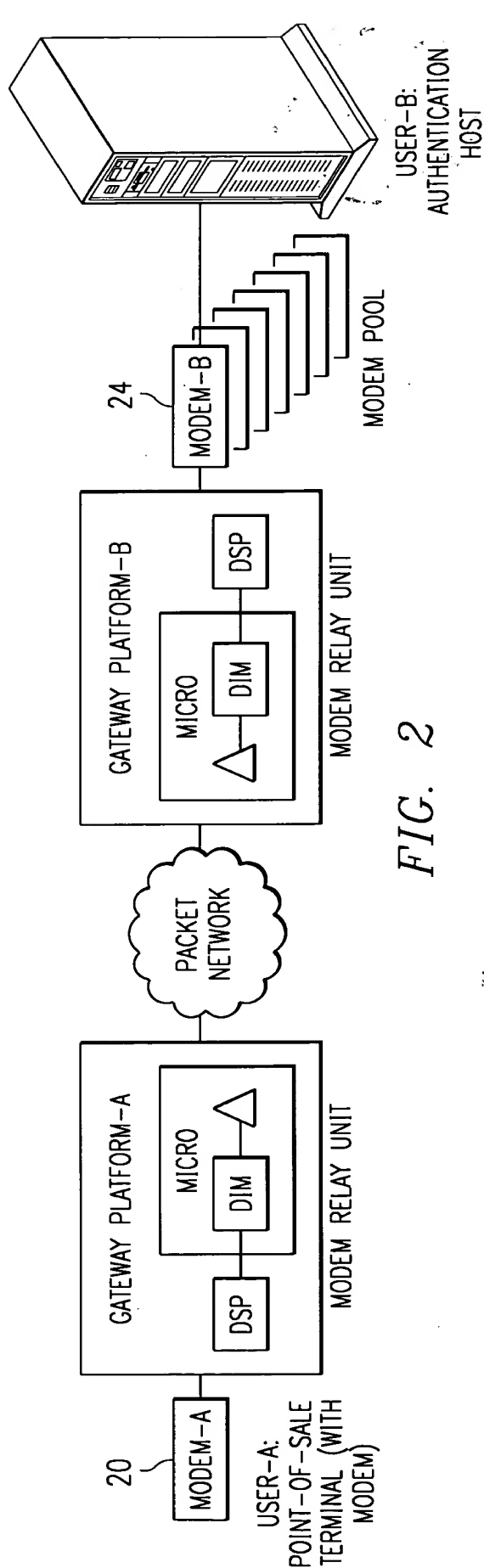


FIG. 2

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The diagram illustrates the architecture of a GDM (Global Data Management) system. It is organized into several functional blocks and their interconnections:

- PCM DRIVER**: The primary input/output interface at the bottom, connected to the **PCM INTERFACE UNIT**.
- PCM INTERFACE UNIT**: Receives data from the PCM Driver and routes it to the **ECHO CANCELLER UNIT** and **RX GAIN** block.
- ECHO CANCELLER UNIT**: Processes the received signal and outputs to the **TX GAIN** block.
- TX GAIN**: Amplifies the transmitted signal, which is then sent to the **VOICE ACTIVITY DETECTION UNIT** and the **VOICE CODEC UNIT**.
- VOICE ACTIVITY DETECTION UNIT**: Detects voice activity and provides feedback to the **VOICE CODEC UNIT** and the **CALLER ID DETECT** block.
- CALLER ID DETECT**: Detects caller ID information and outputs to the **CALLER ID GENERATOR** and the **VOICE CODEC UNIT**.
- VOICE CODEC UNIT**: A central processing block supporting various codecs: G.711, G.726, G.727, G.728, G.729B, G.729AB, and G.732.1A. It receives input from the **VOICE ACTIVITY DETECTION UNIT** and the **CALLER ID DETECT**, and outputs to the **PACKETIZED VOICE PROTOCOL UNIT** and the **VOICE PLAYOUT UNIT**.
- PACKETIZED VOICE PROTOCOL UNIT**: Manages the packetization of voice data and interfaces with the **HPI** and the **MESSAGE PROCESSOR UNIT**.
- VOICE PLAYOUT UNIT**: Manages the playout of voice data and interfaces with the **VOICE CODEC UNIT** and the **MESSAGE PROCESSOR UNIT**.
- MESSAGE PROCESSOR UNIT**: The central hub for message processing, interfacing with the **PACKETIZED VOICE PROTOCOL UNIT**, **VOICE PLAYOUT UNIT**, **SOFTWARE INTEGRATION UNIT**, **CALLER ID GENERATOR**, and **ALL GDM UNITS**.
- SOFTWARE INTEGRATION UNIT**: Interfaces with the **MESSAGE PROCESSOR UNIT** and **ALL GDM UNITS**.
- CALLER ID GENERATOR**: Generates caller ID information based on the **CALLER ID DETECT** and provides it to the **MESSAGE PROCESSOR UNIT**.
- ALL GDM UNITS**: A collection of units that interface with the **MESSAGE PROCESSOR UNIT** and **SOFTWARE INTEGRATION UNIT**.
- Clear Tandem Unit**: Two units are shown, one connected to the **PACKETIZED VOICE PROTOCOL UNIT** and another connected to the **VOICE CODEC UNIT**, likely for signal routing or buffering.

FIG. 6

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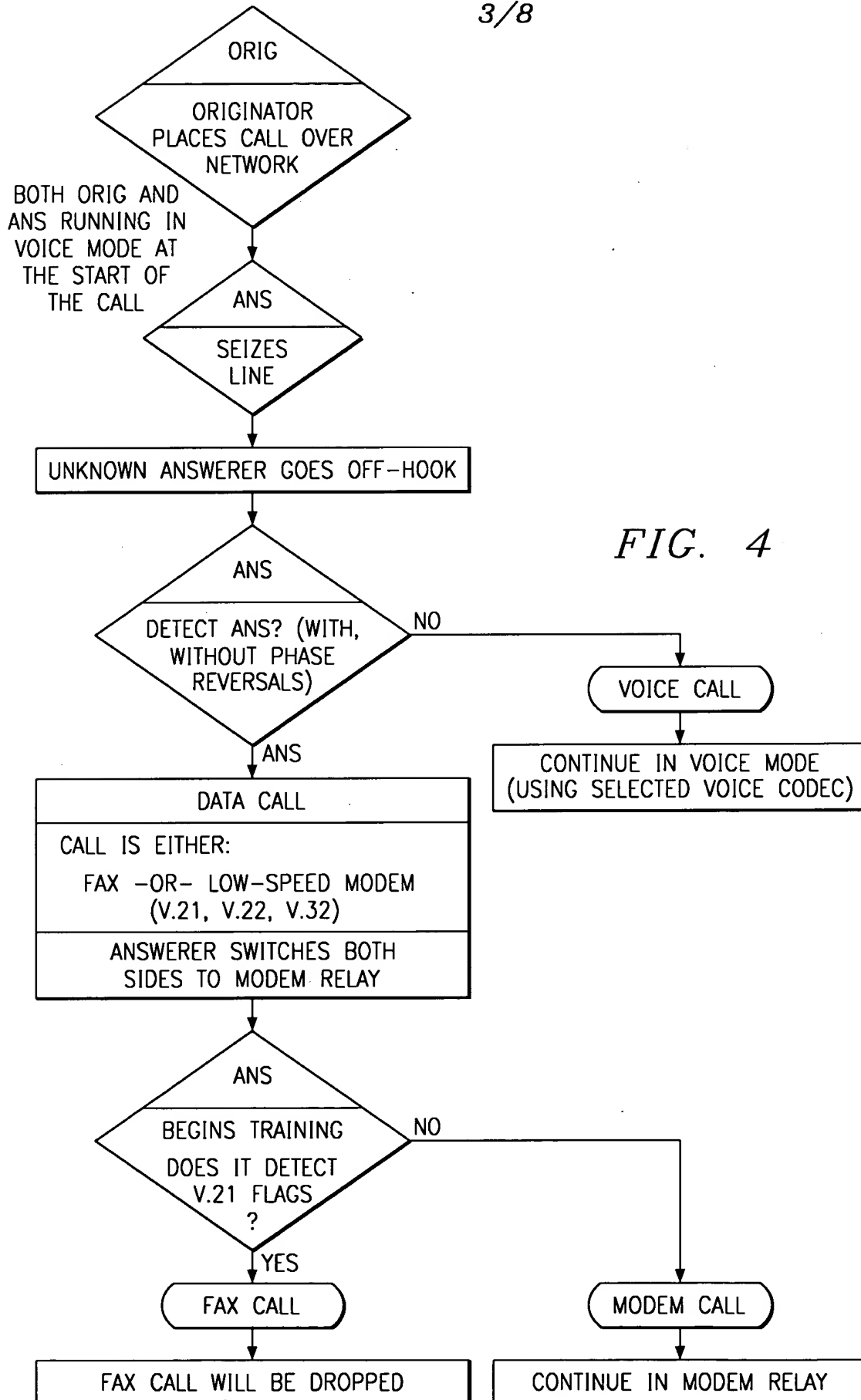
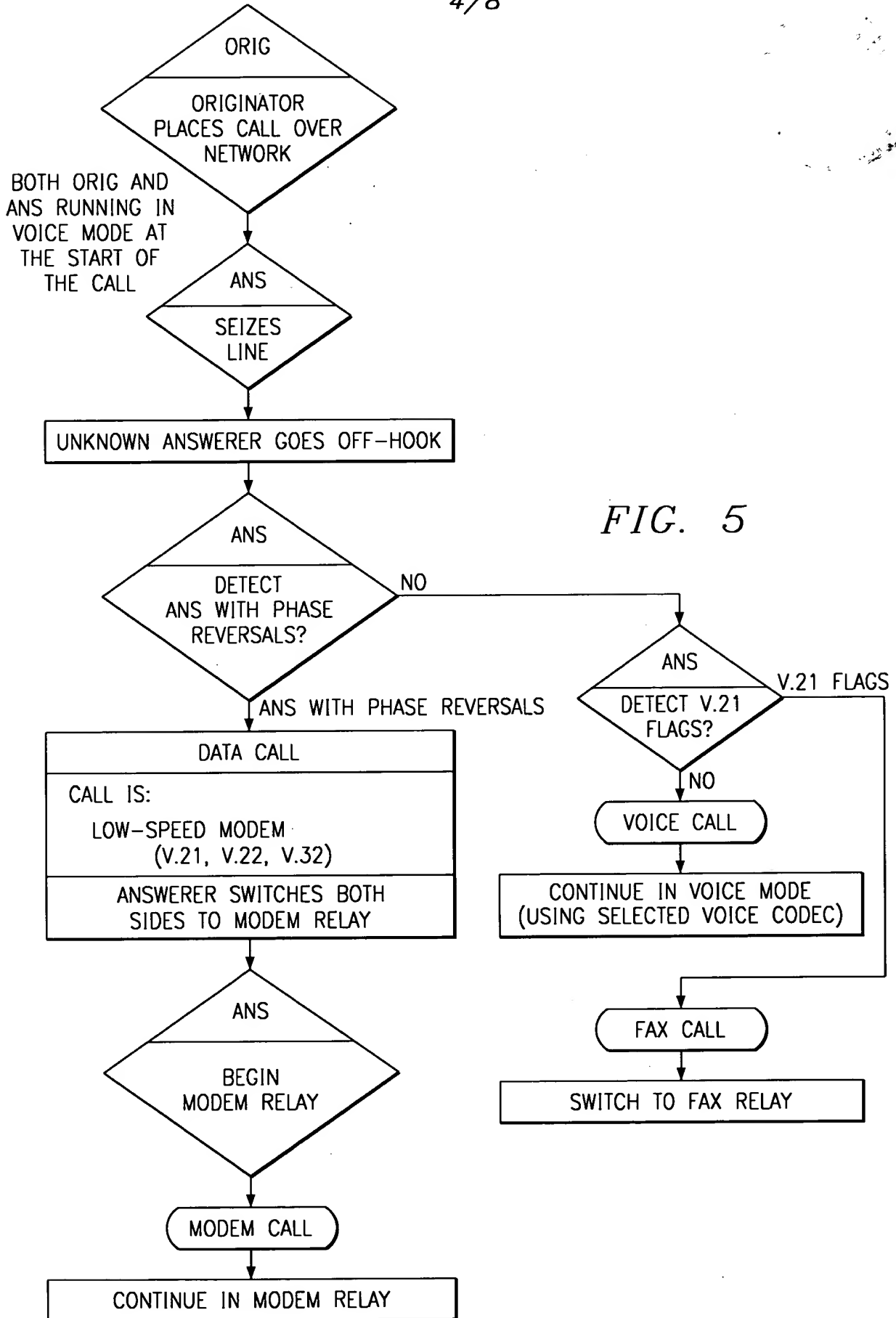


FIG. 4

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102720 19205200



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FIG. 7

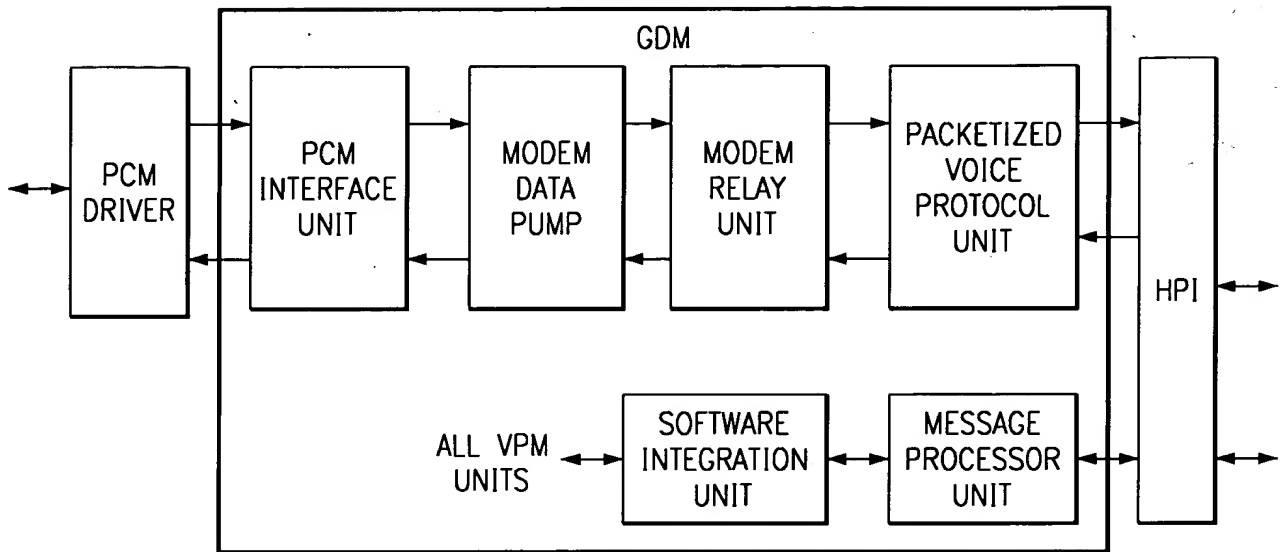
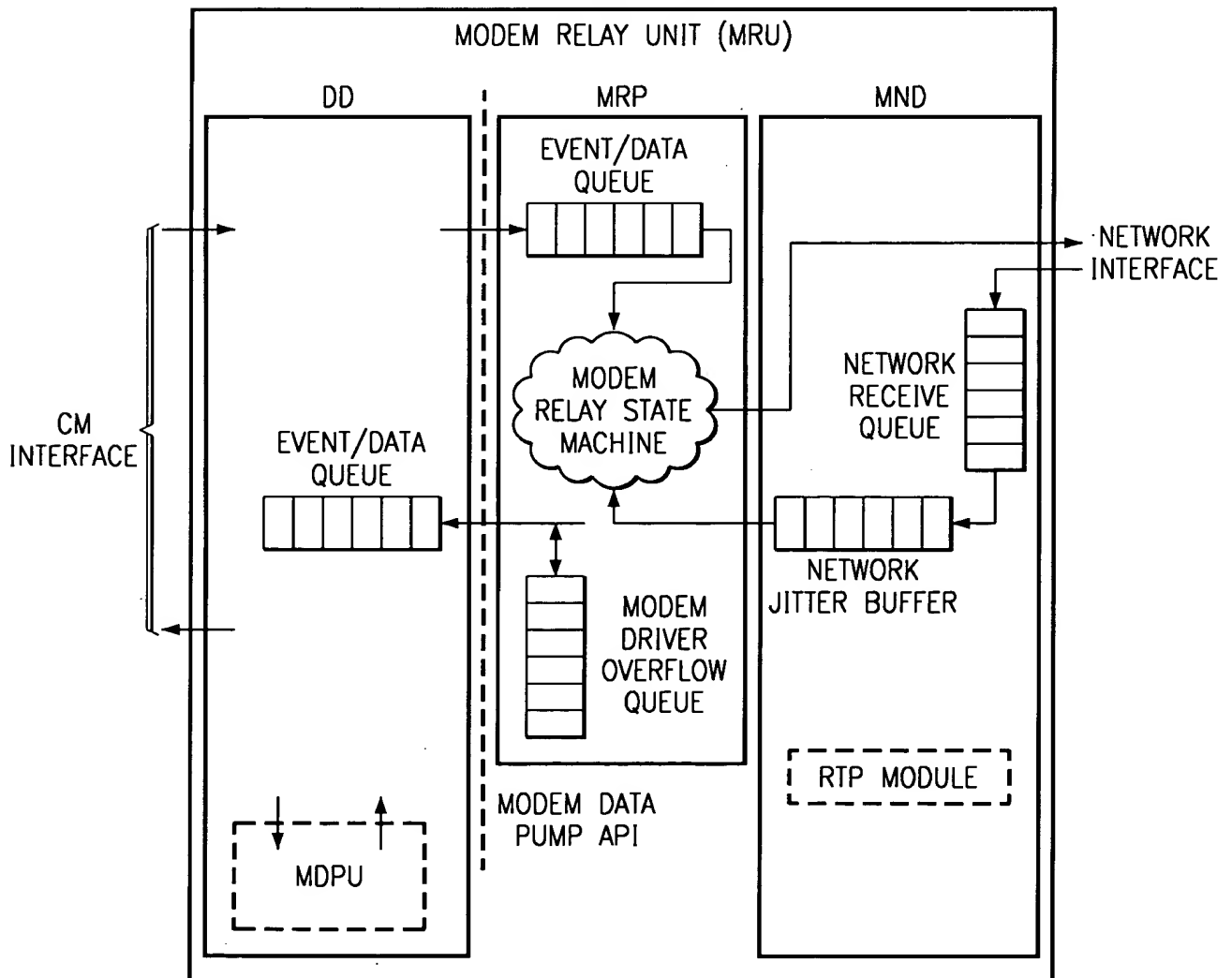


FIG. 8



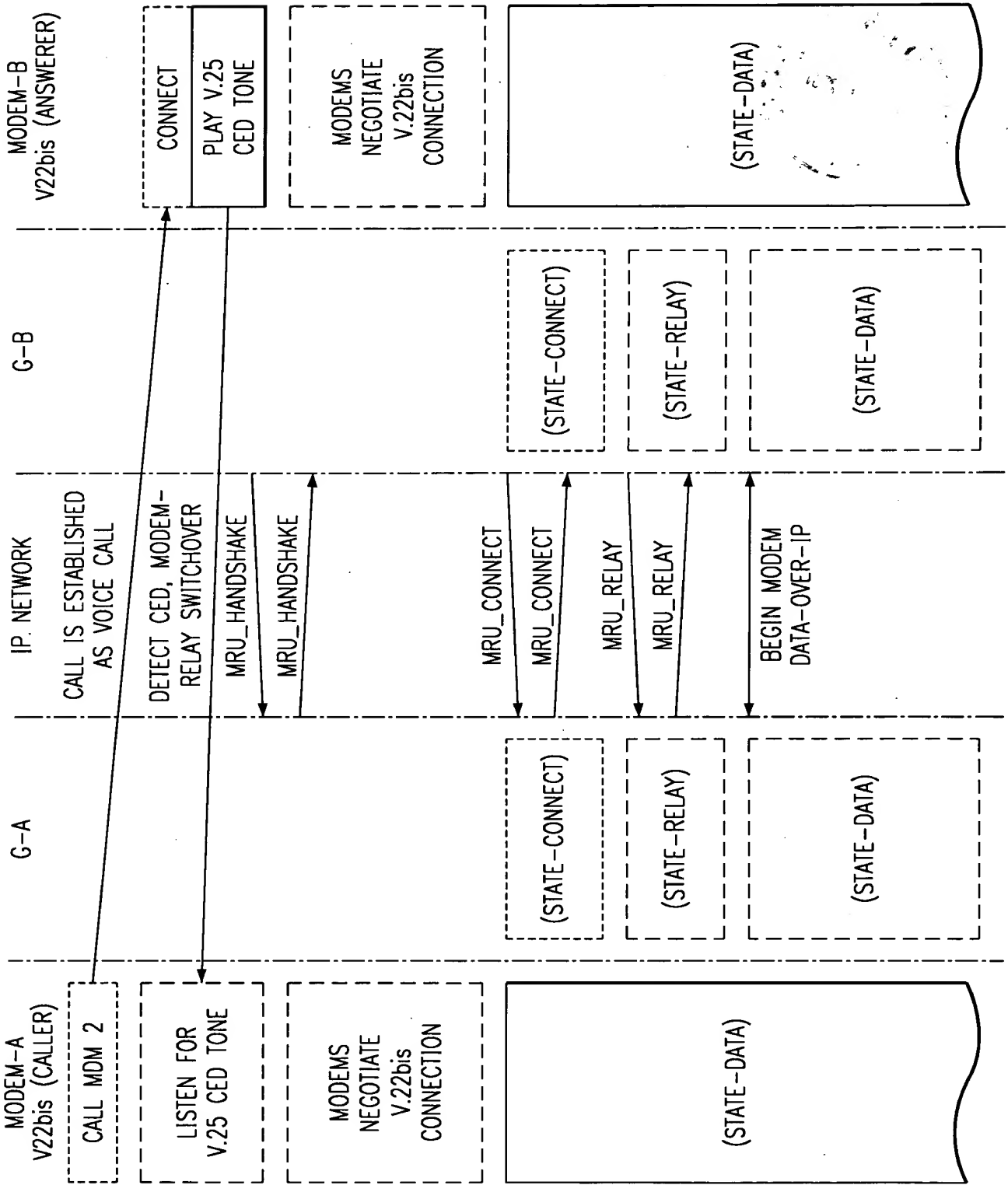


FIG. 9

[illegible]

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MODEM RELAY PROTOCOL STATE PACKETS

PROTOCOL STATE	DESCRIPTION
OFFLINE	IDLE STATE
CARRIER LOSS	SILENCE ON THE ANALOG LINE, CARRIER LOSS
HANDSHAKE	MODEM DATA PUMPS WILL BEGIN HANDSHAKING PROCESS
CONNECT	LOCAL HANDSHAKE SESSION IS PASSED AND READY FOR MODEM RELAY
RELAY	MODEM RELAY TAKES PLACE

MODEM HANDSHAKE STATE PACKETS

HANDSHAKE STATE	DESCRIPTION
V25	V.25 ANSWER TONE IS DETECTED ON THE LOCAL ANALOG LINE
V25PR	V.25 ANSWER TONE WITH PHASE REVERSALS IS DETECTED ON THE LOCAL ANALOG LINE
V21	V.21 B1 SIGNAL IS DETECTED ON THE LOCAL ANALOG LINE
USB1	V.22 USB1 SIGNAL IS DETECTED ON THE LOCAL ANALOG LINE
S1	V.22bis S1 SIGNAL IS DETECTED ON THE LOCAL ANALOG LINE
SB1_1200	V.22bis SB1 SIGNAL @ 1200 IS DETECTED ON THE LOCAL ANALOG LINE
SB1_2400	V.22bis SB1 SIGNAL @ 2400 IS DETECTED ON THE LOCAL ANALOG LINE

MODEM DATA PACKETS

DATA TYPE	DESCRIPTION
V21	V.21 DATA @ 300 bps
V22	V.22 DATA @ 1200 bps
V22BIS	V.22bis DATA @ 2400bps